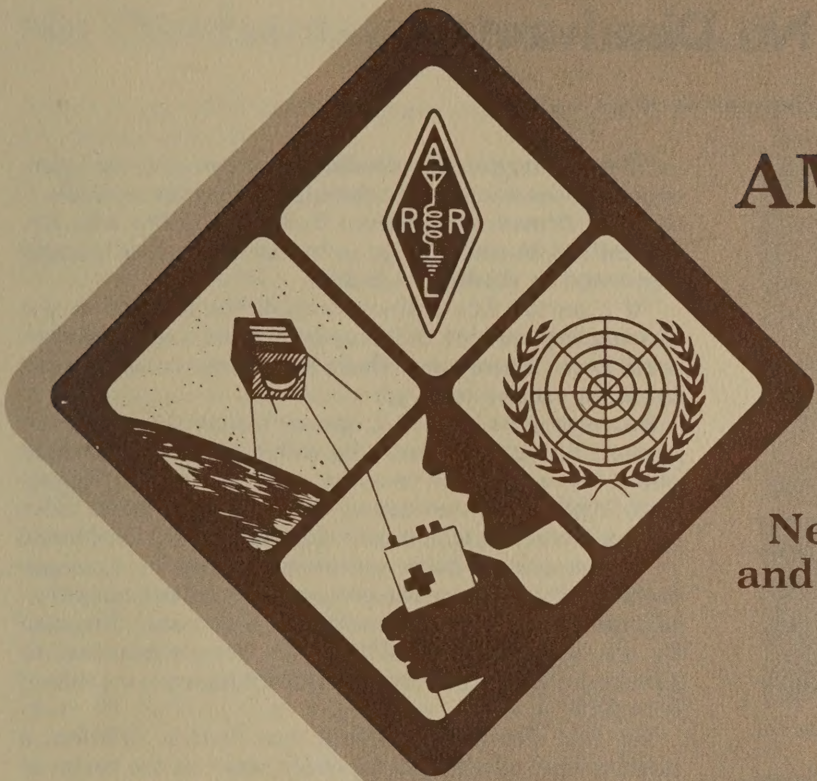

AMATEURADIO

News of the Amateur Radio
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Ham Radio Assists Student Space-Science Experiments

Amateur Radio will ride into space again this year when Space Shuttle *Columbia* mission 41-G carries the Marshall Amateur Radio Club Experiment (MARCE) into orbit.

MARCE, planned and designed by the members of the Marshall Space Flight Center Amateur Radio Club (MARC) of Huntsville, Alabama, is designed to support the Space Shuttle Get Away Special (GAS) number 007 student science experiments. MARCE has three main objectives: a) Demonstrate the feasibility of Amateur Radio data communication from the Space Shuttle Orbiter's Cargo Bay during a Shuttle mission on a non-interference basis with Orbiter and Orbiter payloads; b) Encourage broader participation of Amateur Radio enthusiasts, capitalizing on the pioneering spirit of volunteer Amateur Radio operators and short wave listeners throughout the world; and c) Involve educational groups, from grade school up, to emphasize space communication opportunities for similar ventures through volunteer research and creativity. The NASA Get Away

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Project Manager Konrad Dannenberg (right) oversees student experimenters (l-r) Guy Smith, Jonathan Lee and Arthur Henderson. Not shown is Ed Stluka, principal investigator for MARCE.

(photo courtesy Ed Stluka)

Disability No Disadvantage

by Deborah Kendrick

Clif Brown assists Patricia O'Brien with radio theory and electronics in preparation for her Amateur Radio license exam.

(photo courtesy Worldradio)

"There is no physical disability that can prevent a person from learning the techniques of Amateur Radio," said Clif Brown, an Amateur Radio enthusiast who has made it his business to go in search of disabled people interested in sharing his hobby.

"If a person has a physical disability, a visual loss, a hearing impairment, or has never spoken a word, we can teach him," Brown says. There are countless examples of success to prove him right.

Brown got his Novice (beginner's) license in 1979. He became interested in working with handicapped people about two-and-a-half years ago, while fishing in Minnesota. While communicating over his hand-held radio during his fishing trip, Brown discovered HANDI-HAMS — a network of ham operators trained by Courage HANDI-HAMS, a satellite program of the Courage Rehabilitation Center in Golden Valley, Minnesota. Inspired by the Minnesota HANDI-HAMS, Brown returned to Cincinnati with an enthusiasm which has only increased with time.

His first Cincinnati student was Patricia O'Brien, a quadriplegic whose special needs were in the realm of equipment. "She had no difficulty with reading print," Brown recalls, so studying the material presented no particular problem. She has severe motor limitations, however, caused by a nervous system disorder, which

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Along League Lines

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Ham radio can bring about a chain of events that provides direction in a rudderless existence. Furthermore, ham radio is sometimes more interesting than real life. Is there any other explanation why generations will bridge their gap on the Amateur Radio, while barely allowing an exchange of grunts at the dinner table?

Yes, hamming is all so intriguing, creative and energy-efficient. It's been said that an average amateur station consumes less energy than a 300-watt light bulb. And ham radio lets you become the program director of your own entertainment. No commercials, no time constraints, no ratings. The only limitation is your own imagination.

What's the point? An invitation. We invite you to come join us. Tune into the relm of Amateur Radio, that magical privilege of sending and receiving signals that traverse neighborhoods and nations, that vault high mountain ranges, deep ocean seas, and even outer space.

And something more. When you're out there, we invite you to take along the most important tool you can ever use in your enjoyment of anything — a sense of wonder.

WANT TO KNOW MORE ABOUT THE AMATEUR RADIO SERVICE? Contact Perry Williams, ARRL's Washington Area Coordinator, and arrange for a personal visit by calling (202) 296-9107.

No Disadvantage

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makes it impossible for her to grasp small objects such as knobs and switches.

Brown and another volunteer ham designed a remote-control panel consisting of switches which require pushing, and a digital read-out which can inform Patricia at a glance the frequency being used, rather than the conventional dials which must be carefully grasped and rotated.

Each disability is unique, of course. Brown has recorded a complete set of tapes for the Novice course that is designed specifically for the visually impaired. Along with this set of tapes is a system he designed and built to teach students how to read a schematic wiring diagram.

"It is my belief that any amateur should be able to recognize the various parts of a diagram, and my students can, even if they can't see," says Brown.

Two of Brown's students — both of them blind — have received their Novice licenses: John Brickweg, and Norm Keissler.

Since December 1982, Brown has introduced more than 25 handicapped people to Amateur Radio. "I worked with Norm and recruited another ham, Bob Steinman, to help me with John," says Brown. "Bob and I use different methods to teach, but that doesn't seem to matter to the person who gets the license."

Of the 25 or so people he has worked with — not counting the three who are licensed — there are 10 who are actively seeking a Novice license. These include quadriplegic, paraplegic, blind and deaf individuals.

"As in all things," Brown states, "there are some who feel Amateur Radio is not their bag, and I have a few that want to learn, but this is not their highest priority. I am constantly looking for new people and am now trying to work out the details of getting Amateur Radio into a group home for the blind.

"I have one student there, and if this works out, the authorities at the home will consider purchasing a transceiver, and I will then be able to teach anyone in the home," says Brown. "For this endeavor, I have another amateur helping me. Her name is Jane McIver. Jane understands the problems of teaching the blind because she is also blind."

(Reprinted with permission from Worldradio*)*

Space-Science Experiments

Continued from page 1

Special program provides students with the opportunity to conduct science experiments in space.

Project Explorer is the name of the Experimental Program for GAS number 007, the seventh Get Away Special in NASA's small self-contained payload program. Project Explorer is sponsored by the Alabama Space and Rocket Center, who paid the fee for GAS 007, and the Alabama Section of the Institute of Aeronautics and Astronautics.

The MARCE function, as a guest GAS 007 experiment, are to provide (1) primary power, networks, control and distribution, (2) an instrumentation system, (3) a data system, and (4) a radio system for possible contact with OSCAR to relay information from the Orbiter Cargo Bay to Amateur Radio operators around the world. OSCAR is the acronym for Orbiting Satellite Carrying Amateur Radio. OSCAR is a series of Amateur Radio satellites designed and built by ham radio operators and launched "piggy-back" or as "hitchhikers" along with other space satellites.

The Marshall Amateur Radio Club Experiment will provide information on the "mission elapsed time" and the operational status of student experiments during flight by transmitting data to Amateur Radio stations around the world. The data will be transmitted by a computerized voice in English. Amateur Radio stations will receive and record the measurement data and relay the information to MARC at Huntsville, Alabama and other NASA centers who might want to participate.

The MARCE unit will supply power and control three other student experiments in GAS 007: a solidification of metal alloys experiment, to investigate how metal alloys harden under zero-gravity conditions; in the second experiment, radish seeds will be grown to demonstrate the ability of rapid germination (sprouting) and growth in weightlessness. The third experiment will be to observe how crystals grow in the absence of gravity. A small camera and electronic flash unit will be used to record crystal growth.

ALONG LEAGUE LINES

The Amateur Radio experience supplies a necessary ingredient for friendship — something in common. Radio amateurs are goodwill ambassadors, spreading a special form of camaraderie that knows no territorial boundaries. In effect, "have signal, will travel."

Communicating with another unseen person, without wires, is a magical if not mystical excursion. That must be the basic appeal of Amateur Radio; why we operate and continue to come back for more.

Most amateurs (and would-be amateurs) believe that communication is indeed a spirited adventure. Getting on the air is fun. It's good therapy; a legal and non-toxic respite, an oasis perhaps, in a hectic society. It permits you to become immersed in a completely different world, made up of electronic impulses and the exchange of specialized information, in a unique language. Positive reinforcement and recognition come from accomplishments of various sorts.

The mystic traveler through this realm has much to choose from; vivid and soul-stirring encounters with the ether. The uninitiated find it strange and hard to understand. But listen. One can enjoy the Morse code like good music, because code is, after all, an art form. In the aftermath of an emergency, it's the sense of fulfillment after competent service rendered. It's the thrill of the hunt, as an amateur stalks a contact with a "new" country like a distant quarry. And it's the pride and respect that very proficient operators draw from the smooth running of their communications network. Or it's the basic realization that someone on the other side of town or the other side of the globe thinks a lot like you do. The diverse Amateur Radio subcultures abound with personal enrichment.

The radio amateur knows that operating his station can change into something more than just a pleasant diversion. After a tropical storm, his shack will be in the forefront of disaster relief efforts. Amateur Radio serves as a veritable lifeline for a community in need.

All this is a far cry from the initial novelty of talking to another station a hundred miles down the pike "for nothing." The idea is that ham radio provides an endless variety of operating activities and services to the public in time of need.

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